

AMENDMENTS TO THE CLAIMS:

Claims 1-5, 7, 9-17, 19-24 and 38-44 were pending at the time of the Office Action.

Claims 1, 3-5, 7, 10, 16-17, 19, 38, and 40-43 are amended.

Claims 1-5, 7, 9-17, 19-24 and 38-44 remain pending.

1. (Currently Amended) A laminate structure, comprising:

a first region having a non-uniform thickness, the first region including:

a first layer having:

a first portion of a non-metallic material, the first portion at least partially encompassing a cutout region;

a second portion of a metallic material formed within the cutout region, the second portion abutting the first portion;

a second layer adjacent the first layer that non-interruptably extends along the first layer, the second layer being formed from a non-metallic polymeric material; and

a third layer having a first portion of a non-metallic material, the first portion at least partially encompassing a cutout region, and a second portion of a metallic material formed within the cutout region, the second portion being co-planar with the first portion, and wherein the second layer is disposed between the first and third layers.

2. (Original) The laminate structure of Claim 1, wherein the first portion includes a fiber-reinforced polymeric material.

3. (Currently Amended) The laminate structure of Claim 1, wherein the first portion includes a fiber-reinforced polymeric material having one or more fibers formed from a material selected from a group consisting of aramids, polyolefins, glass, carbon, boron, and ceramics, and wherein the metallic material of the second portion is formed from a material selected from a group consisting of titanium, aluminum, alloys of titanium, alloys of aluminum, and alloys of iron.

4. (Currently Amended) The laminate structure of Claim 1, further comprising a second region integrally coupled to the first region by one or more layers of non-metallic material, the first layer of the first region not extending into the second region ~~wherein the metallic material of the second portion is formed from a material selected from a group consisting of titanium, aluminum, alloys of titanium, alloys of aluminum, and alloys of iron.~~

5. (Currently Amended) The laminate structure of Claim 4 ~~1~~, wherein the first region includes a minimum-thickness portion, the second region being integrally coupled to the minimum-thickness portion and having a thickness approximately equal to the minimum thickness portion of the first region ~~first portion includes a resin.~~

6. (Cancelled)

7. (Currently Amended) The laminate structure of Claim 4 ~~1~~, wherein the second region consists essentially of one or more non-metallic layers ~~further comprising an adhesive resin disposed between the first layer and the second layer.~~

8. (Cancelled)

9. (Previously Presented) The laminate structure of Claim 1, wherein the first portions of the first and third layers are non-coextensive.

10. (Currently Amended) A laminate structure comprising:

a first region having a non-uniform thickness, the first region including:

a metal-polymer lamina, the metal-polymer lamina having a first face and a second face spaced apart from the first face, extending to a terminal edge, the lamina including:

a ply of fiber-reinforced polymer extending between the first face and the second face and having at least one interior edge, the interior edge defining at least one cutout;

a ply of metal foil extending between the first face and the second face substantially from the interior edge to fill the at least one cutout, ~~and;~~ and

a polymer lamina adjacent the metal-polymer lamina, the polymer lamina having a third face and a fourth face spaced apart from the third face, the polymer lamina including a ply of fiber-reinforced polymer that extends between the third face and the fourth face and extends non-interruptably along the metal-polymer lamina and substantially to the terminal edge.

11. (Original) The laminate structure of Claim 10, wherein the metal-polymer lamina further includes a periphery and the terminal edge further defines the at least one cutout abutting the periphery.

12. (Original) The laminate structure of Claim 10, wherein the metal-polymer lamina further includes an interior, the interior edge defining the at least one cutout within the interior.

13. (Original) The laminate structure of Claim 10, wherein the fiber-reinforced polymer includes a fiber selected from a group consisting of aramids, polyolefins, glass, carbon, boron, and ceramics.

14. (Original) The laminate structure of Claim 10, wherein the metal foil includes a metal selected from a group consisting of titanium, aluminum, alloys of titanium, alloys of aluminum, and alloys of iron.

15. (Original) The laminate structure of Claim 14, wherein the alloys of titanium are selected from a group consisting of (Ti-6Al-4V), (Ti-15V-3Cr-3Sn-3Al) and (Ti-15Mo-3Al-3Nb).

16. (Currently Amended) The laminate structure of Claim 10, further comprising a second region integrally coupled to the first region by one or more layers of non-metallic material, the metal-polymer lamina of the first region not extending into the second region wherein the polymer includes a resin.

17. (Currently Amended) The laminate structure of Claim 16 40, wherein the first region includes a minimum-thickness portion, the second region being integrally coupled to the minimum-thickness portion and having a thickness approximately equal to the minimum thickness portion of the first region ~~laminate structure further comprises an adhesive resin.~~

18. (Cancelled)

19. (Currently Amended) The laminate structure of Claim 16 40, wherein the second region consists essentially of one or more non-metallic layers ~~laminate structure further comprises an adhesive resin interposed between the metal-polymer lamina and the polymer lamina to adhesively fuse the metal-polymer lamina to the polymer lamina.~~

20. (Original) The laminate structure of Claim 10, wherein the metal polymer lamina is a first metal-polymer lamina, the laminate structure further comprising a second metal-polymer lamina coupled to the first metal-polymer lamina.

21. (Previously Presented) The laminate structure of Claim 20, wherein the laminate structure further comprises the adhesive resin interposed between the first metal-polymer lamina and the second metal-polymer lamina to adhesively fuse the first metal-polymer lamina to the second metal-polymer lamina.

22. (Original) The laminate structure of Claim 21, wherein the first metal-polymer lamina has a first interior edge and the second metal-polymer lamina has a second interior edge and the first interior edge is not co-terminous with the second interior edge.

23. (Original) The laminate structure of Claim 10, wherein the laminate structure further comprises the metal-polymer lamina and metal foil lamina, the metal foil lamina having a fifth face and a sixth face spaced apart from the fifth face and including:
a ply of metal foil extending between the fifth face and the sixth face.

24. (Original) The laminate structure of Claim 23, wherein the laminate structure further comprises the adhesive resin uniformly interposed between the metal-polymer lamina and the metal lamina to adhesively fuse the metal-polymer lamina to the metal lamina.

Claims 25 – 37 (Cancelled)

38. (Currently Amended) A laminate structure comprising:

a first region having a non-uniform thickness, the first region including:

a metal-polymer lamina, the metal-polymer lamina having a first face and a second face spaced apart from the first face, extending to a terminal edge, the lamina including:

a ply of fiber-reinforced polymer extending between the first face and the second face and having an interior edge, the interior edge defining at least one cutout; and

a ply of metal foil extending between the first face and the second face substantially from the interior edge to fill the at least one cutout;

a fiber-reinforced polymer lamina, the polymer lamina having a third face and a fourth face spaced apart, extending to the terminal edge, the lamina including:

a ply of fiber-reinforced polymer extending non-interruptably along the metal-polymer lamina and substantially to the terminal edge; and

an adhesive resin ~~uniformly~~ interposed between the metal-polymer lamina and the fiber-reinforced polymer lamina to adhesively couple ~~fuse~~ the metal-polymer lamina to the fiber-reinforced polymer lamina.

39. (Previously Presented) The laminate structure of Claim 38, wherein the metal-polymer lamina further includes a periphery and the terminal edge further defines the at least one cutout abutting the periphery.

40. (Currently Amended) The laminate structure of Claim 38, further comprising a second region integrally coupled to the first region by one or more layers of non-metallic material, the metal-polymer lamina of the first region not extending into the second region ~~wherein the~~

~~metal polymer lamina further includes an interior, the interior edge defining the at least one cutout within the interior.~~

41. (Currently Amended) The laminate structure of Claim 38, wherein the fiber-reinforced polymer includes a fiber selected from a group consisting of aramids, polyolefins, glass, carbon, boron, and ceramics, and wherein the metal foil includes a metal selected from a group consisting of titanium, aluminum, alloys of titanium, alloys of aluminum, and alloys of iron.

42. (Currently Amended) The laminate structure of Claim 40 38, wherein the first region includes a minimum-thickness portion, the second region being integrally coupled to the minimum-thickness portion and having a thickness approximately equal to the minimum thickness portion of the first region ~~metal foil includes a metal selected from a group consisting of titanium, aluminum, alloys of titanium, alloys of aluminum, and alloys of iron.~~

43. (Currently Amended) The laminate structure of Claim 40 42, wherein second region consists essentially of one or more non-metallic layers ~~the alloys of titanium include (Ti-6Al-4V), (Ti-15V-3Cr-3Sn-3Al) and (Ti-15Mo-3Al-3Nb).~~

44. (Previously Presented) The laminate structure of Claim 38, wherein the polymer includes a resin.